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Effect of type of food and culture density on growth and lipid composition of *Seriola dumerili* juveniles

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The aim of this study was to determine the effect of three different types of food and two stocking densities on growth, survival and lipid composition of muscle and liver of *Seriola dumerili* juveniles. A total of 145 juveniles were distributed in groups of 15 fish/tank (low density, LD) and groups of 25 fish/tank (high density, HD), and fed with three different types of food: commercial pellets for *Sparidae* (SP), commercial pellets for *S. dumerili* (SE) and frozen mackerel (MA). Muscle and liver samples were collected for lipid analysis after 86 days.

SP fed fish grew significantly lower than the SE and MA fed fish for both stocking densities. Higher survival was observed with diets SE and MA held at LD.

No difference between different stocking density was detected in lipid composition but differences were observed between different diets. Total lipid of muscle and liver from SE fed fish was higher than in those fed with SP and MA, which was reflected in higher triglycerides and lower cholesterol in SE fed fish.

The fatty acid composition of tissues reflected the diet's composition. The groups fed with MA presented the highest proportion of docosahexaenoic acid (DHA), arachidonic acid (ARA) and the lower amounts of eicosapentaenoic acid (EPA). In contrast, SE fed fish presented the lower amounts of ARA and DHA and higher content in 18:2n-6, specifically in liver. In consequence, MA fed fish presented a higher DHA/EPA ratio and a lower EPA/AA ratio in both tissues, while the opposite was observed in SE fed fish.

These preliminary results indicate that the SE diet promotes a better performance than the SP diet in terms of growth and survival rates, which are comparable to fish fed with MA, although with a higher lipid deposition in tissues.

Keywords: Seriola dumerili, nutrition, growth, EFA